



Datafox

accompanying booklet

Software Version 04.03.23

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The software accompanying booklet is an addition to the current manuals. It describes new functionality available with this software release.

The following figure shows, for which devices the following section applies – if no additional information is present there.

The affected individual devices are marked using the ☒ symbol.














			 4.3/4.6	 2.8/3.5	 Universal	 Inloc	 Mobil Box	 IO-Box	 Oneloc			 EVO-PC
☒	☒	☒	☒	☒	☒	☒	☒	☒	☒			☒

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1. Introduction

We appreciate your interest in the extended functionality of the new software release.

We aim to provide a quick start into the functional enhancements of firmware version 04.03.23 by providing this document.

The most recent software accompanying booklet was associated to release 04.03.21 – you can access it through the Datafox Website → “Download” → “Downloads Datafox Software” → “Download – Software Master IV – Hardware Version 4“.

2. New display layout for EVO 5.0 and EVO 7.0

			 4.3/ 7.0	 2.8/3.5	 5.0	 Uni- versal	 Agera ZK	 Inloc	 Mobil Box	 IO-Box	 Oneloc	 EVO- PC
			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>							

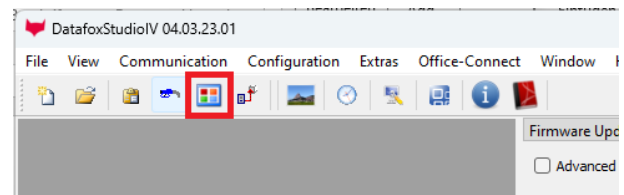
The corresponding device or devices for which this section applies are labelled with .

The design of the display has a greater degree of freedom for devices EVO 7.0, EVO 5.0 and EVO 5.0 Pure. The most prominent features available with version 04.03.23 are:

- List data may use a bigger part of the display
- List data may use multiple rows
- List elements may be arranged like the touch keyboard
- The main menu may be created freely as well,
- Touch keys may have different sizes and be arranged freely, due to the underlying grid being adjustable.

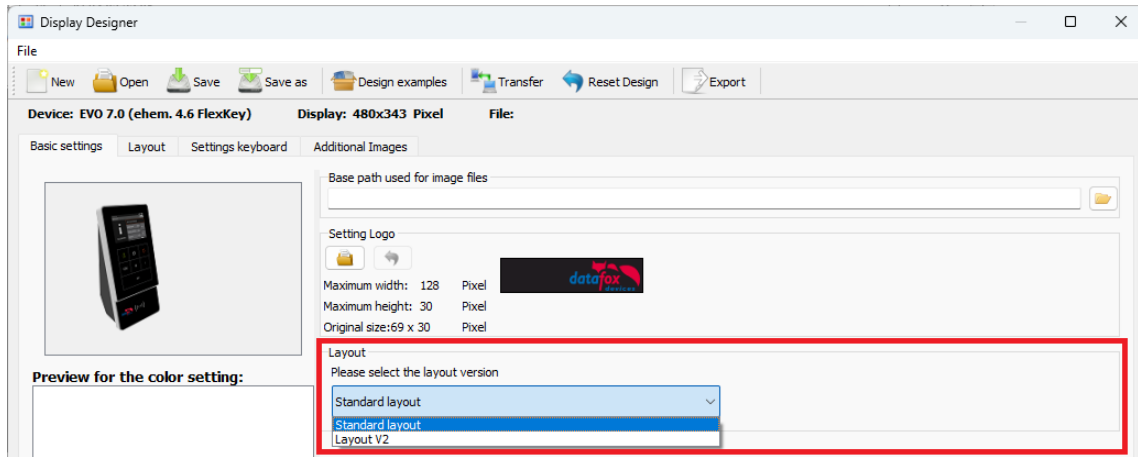
2.1. The new layout editor

The Datafox Studio contains an extended configuration interface for the required settings. This is accessible via the ‘Display Designer’, which you can find either in the toolbar or in the configuration menu (‘Device display’) of the Datafox Studio:

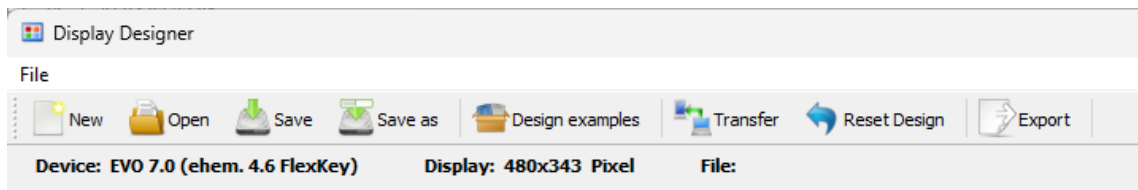


If you create a display layout for one of the above-mentioned devices, you will find a selection box for the layout - ‘Standard layout’ or ‘Layout V2’ - in the basic settings of the Display Designer.

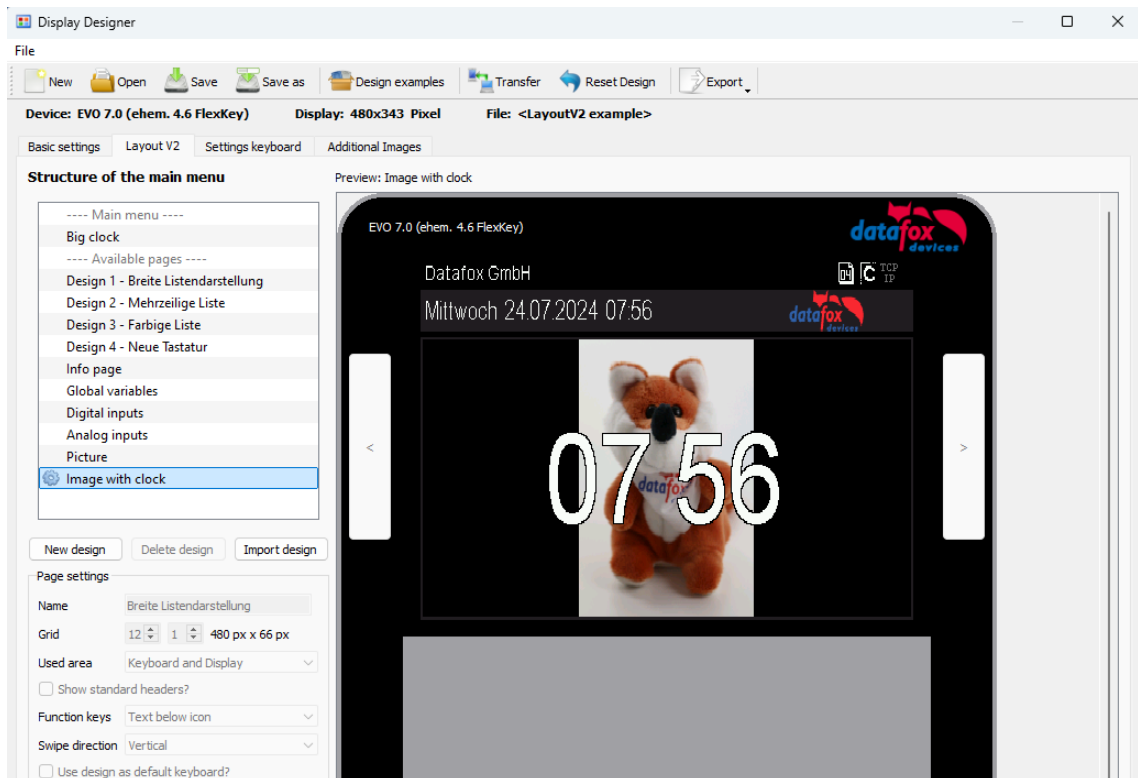
In the standard layout, the device behaves as before, i.e. the data acquisition process is shown in the display area; you can save an image as a keyboard background for buttons in the device.



When changing to “Layout V2”, the “Layout” tab with the extended editor is show:

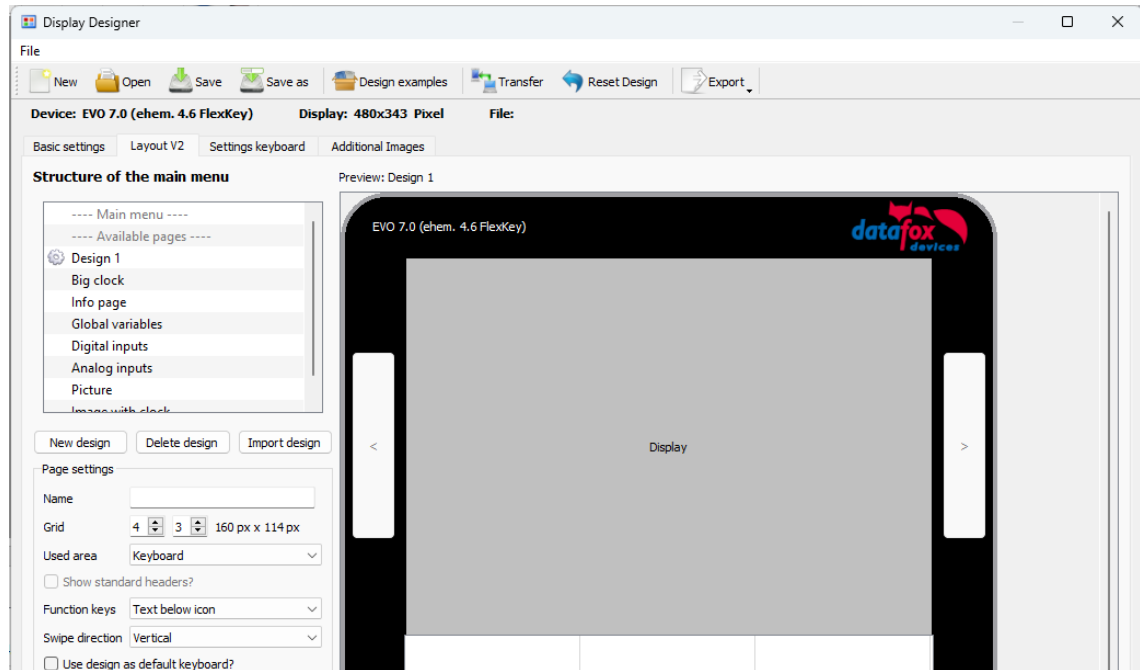


After switching to the ‘Layout V2’ tab, the editor is displayed in three areas: To manage the main menu, you will find the current main menu pages (empty here) and the pages available in the device in the top left-hand area. Below this is the editor for a Layout V2 page and, on the right-hand side, a preview of the content in relation to the currently selected device:



2.1.1. Creating a new layout design

To create a new layout design, press the 'New design' button. The 'Design 1' is then displayed in the main menu editor. The gear symbol next to it symbolises that this page is currently being edited / is displayed in the preview.



The layout editor allows you to create up to 25 designs. The section "Page settings" allows setting the following parameters for each of these designs:

- **Grid:**
This setting specifies the number of tiles that are displayed in the device. The more columns/rows are set, the smaller the tile will be displayed (in the device as well as in the preview), whereby the preview requires a minimum size for the purpose of editability and works with scrollbars if necessary.
- **Used area:**
You can choose whether you want to create a design for the
 - o Display area,
 - o keyboard area or
 - o both areas
 Depending on the selection you make, you can
 - o **show the standard headers** (or design them yourself in the layout if required) and
 - o if you 'only' use the keyboard area, you can also use this design instead of the standard keyboard (this is not possible if the display area is also used - see also 'Use this design as standard keyboard')
- **Function keys:**
Function keys, typically 'clock in' and 'clock out' in connection with personnel time recording, are usually assigned an image or icon. If an icon is available and a text is also assigned, this option can be used to select whether the image and icon should be arranged next to each other or below each other.
- **Swipe direction:**
If the design contains list data, you may switch between the pages for lists whose data does not fit on one single page. This is done by swiping the content on the display. You may swipe either vertically or horizontally. You specify here which 'swipe direction' is expected by the device.
- **Use this design as standard keyboard:**

Designs that only use the keyboard area can be used as a standard keyboard instead of the keyboard image. In this case, it is not necessary to store a 'touchbutton.bmp' and associated 'touch configuration (*.dfk)' in the device - the standard keyboard is realised by a design of the Layout-V2.

Attention:



If you perform a firmware downgrade to a version lower than 04.03.23, which does not yet support Layout-V2, the device automatically uses the previous mechanism and therefore expects the keyboard image and the DFK file. If these are not available, the device may not be operable.

- **(Tile) shape:**
Tiles can be displayed either square or with rounded corners. The actual display parameters may differ between different device types, so it is not possible to specify a curve radius, for example.
- **Tile spacing:**
Depending on requirements, the distance between tiles can be selected here.
- **Font size** (of the text in the tile):
The standard font size of the text display in tiles (list data content or text for other tile types) can be specified here in the familiar sizes ('small', 'normal', 'large' or 'extra large'), as you know this from the list and message display to date.
The setting made here applies to all tiles - unless the tile itself defines a different font size (see below, 'Customise appearance')
- **Border width** (of the tile):
To differentiate the cells from each other or from the background, a line width can be selected for the cell border. The colour of the border, as well as the cell background, is set via
 - o (for list data): Display data on the list data
 - o Individual cell properties
 - o The standard appearance of the cellsdepending on which of the parameters is available first from top to bottom.
- **Standard cell appearance:**
The tile display is controlled by three colour values, which should have a good contrast for recognition in the device. A default can be specified here for these colour values, which can then be adjusted cell by cell or via the data.

Furthermore, you can cause the editor to adopt the design standard colours. This means that the colour settings made on the 'Basic settings' page are also adopted in the layout.

2.1.2. Importing Designs

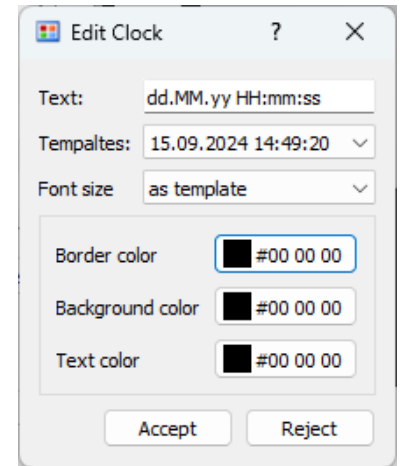
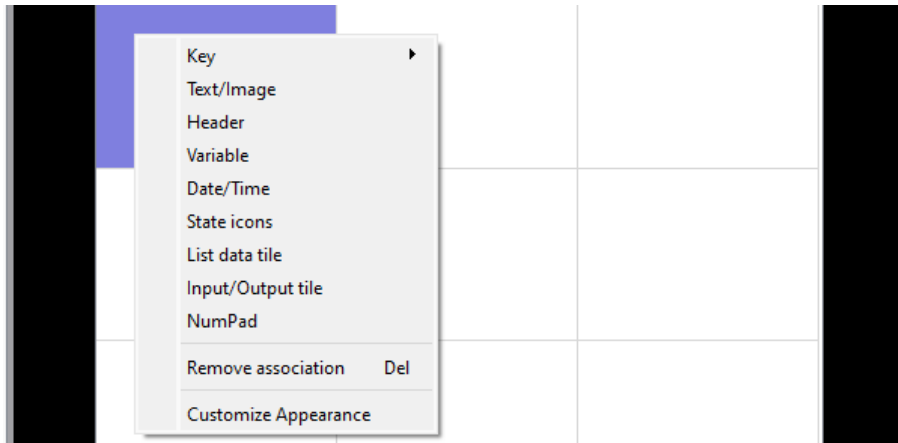
If you have a ready-made design e.g. for a different project and want to reuse it, you may import it into your current design. Use the button "Import Design."

Choose the INI-file from the design you want to import from. The content of the design is shown inside a new window – the window is tailored to choosing a design rather than manipulating the design.

Select the design to import and activate the button "Import design." The design is transferred into you current design.

2.1.3. Assigning functions to tiles

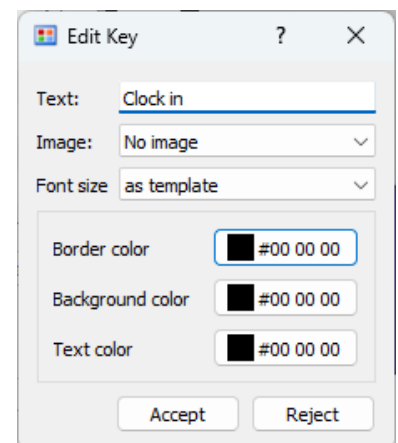
The tiles of the design can be manipulated via the context menu in the preview area:



The context menu allows you to

- Merge or unmerge several tiles (not shown above as only one tile has been selected)
- Assign a function to an area. The following options are available here:
 - o Key
Input: Function, number or arrow keys
 - o Text/image
Output of text and/or an image
 - o Header 1, 2, 3 or 4
Output of the content of a header
 - o Value of a variable
Output of the content of a variable
 - o Date/time
Output of the current date/time
 - o Status icons
Output of the data record counter and network status
 - o List data tile
Display of a list line
 - o Input/output tile
This tile is used as an input or output element in the field functions 'Display message or wait', 'Confirmation', 'Fingerprint administration' and 'Record signature'.
 - o Numeric keypad
Display of a numeric keypad for entering numbers
- Cancelling the function assignment
- Customise the cell appearance
The editor for customising the cell appearance depends on the type previously assigned to the tile.

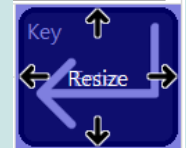
In this way, you can, for example, realise function buttons of different sizes in the main menu or multi-column, full-screen list displays.





Please Note:

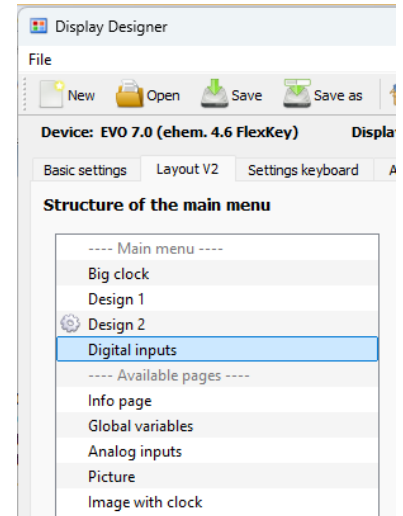
Created cells can be moved, enlarged and reduced in size. To do this, select a cell and use Ctrl or Ctrl+Shift in conjunction with the arrow keys on the keyboard.



2.1.4. Modifying the main menu

The main menu editor works with drag-and-drop. There are the sections 'Main menu' and 'Available pages.' Take the pages from the available pages area and drag them to the desired position in the main menu. If insertion is possible at this position, the insertion position highlighting changes from red to blue.

You can also remove pages from the main menu or change their order in the same way: Click on an entry and drag it to another valid insertion position or out of the main menu - it will then be included again as an available page. If the design contains tiles with list assignments, these remain empty in the main menu.



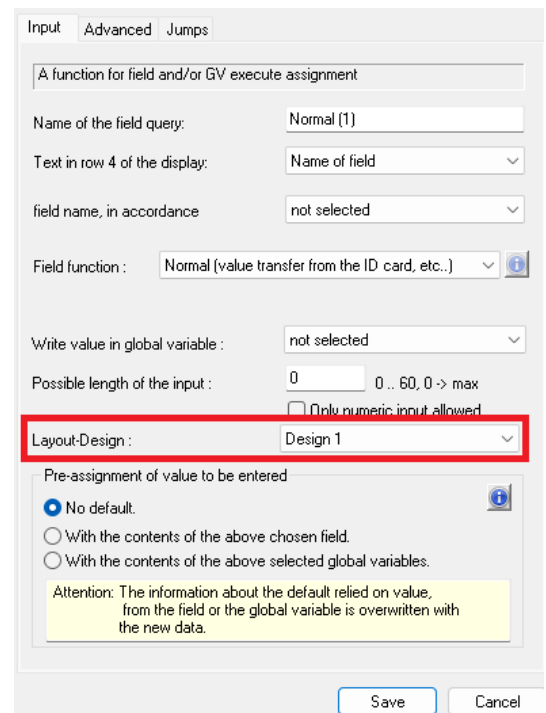
2.1.5. Using the preview

As soon as you have set up a main menu, you can switch between the main menu pages using the arrow buttons at the edge of the preview area. You will see symbolising preview images of the preview pages created in the device (large clock, image, image with clock, digital inputs, analogue inputs, global variables) and the editor view of the pages you have created yourself and assigned to the main menu.

2.2. Layouts in the data acquisition process

To be able to customise the setup even more precisely to your customer's needs, you can now create up to 25 designs and adapt them for different actions during data entry. You can assign a design to each of the following field functions via the 'Layout design' selection list:

- Normal
- Multi-Input
- Select from list
- Confirmation
- Show message or wait
- Perform Fever control
- Take a picture with the camera
- Read long barcode
- Read signature
- Switch communication
- Fingerprint functions



As various configuration contents are independent of each other in Datafox devices, it is possible to select any of the 25 designs in addition to the 'Standard' selection (as is currently the case - list selection in the display area).

If the device detects that this design does not exist or does not have an area for displaying list content, the device uses the 'Standard' display.

If you import a setup with layout assignment into a device that does not fulfil the minimum firmware version, the standard list display is generally used.

2.2.1. Optional Extension of list data

If you do not want to specify the colour design of the list cells in the display via the layout, but want to select them based on the list content, you can store the colour information in the list data.

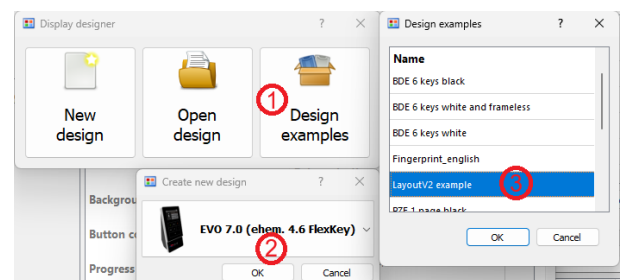
To do this, add a column with the name 'Colors' to the list definition. This column contains three RGB values in hexadecimal notation introduced with '#' and separated by spaces - and is at least 23 characters wide. The order of the colours is structured 'from the outside inward', i.e. frame, background, font colour.

Example:

- Color = '#0000ff #000080 #c0c0c0':
Blue frame, dark blue background, light grey font.
- Color = '#800000 #ff0000 #ffff80':
Dark red frame, red background, light yellow font

2.3. Examples

The examples shown in this section are part of Datafox Studio 04.03.23. You may open them as design example directly within the Datafox Studio or import design layouts from them.



2.3.1. List data using the entire screen's width

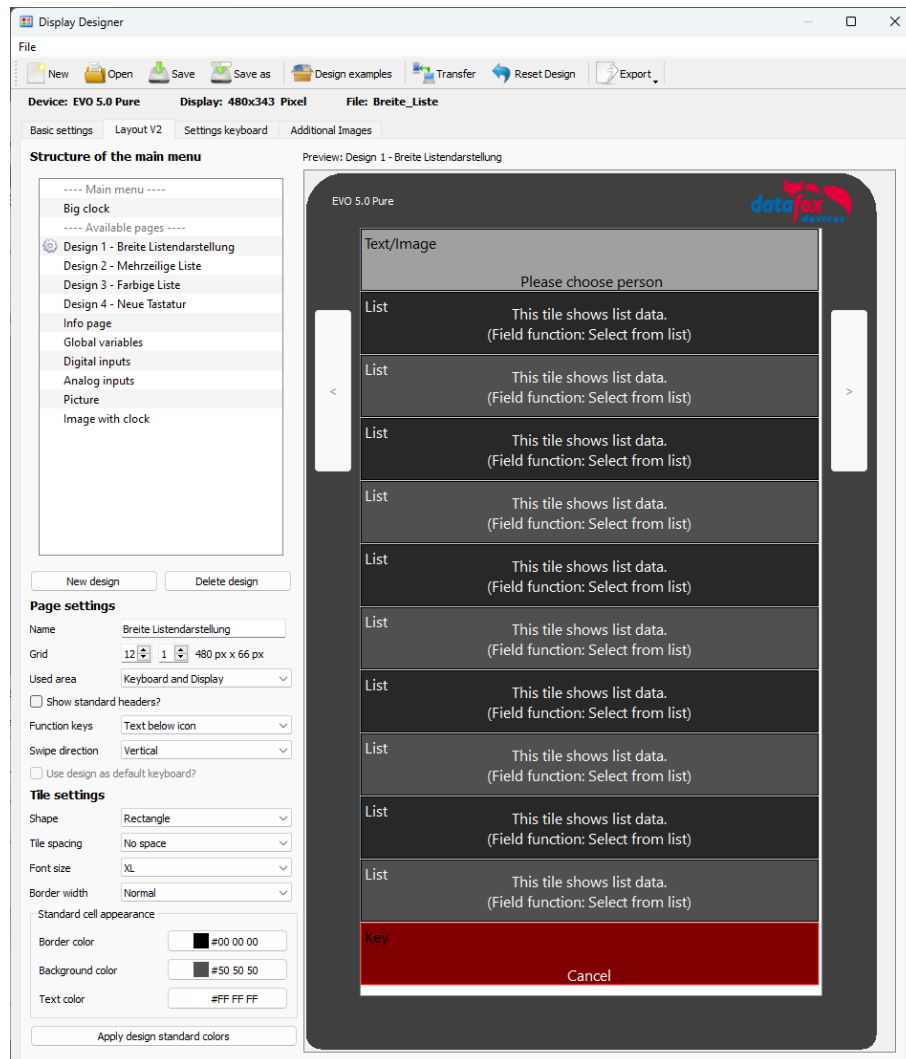
Please perform the following steps:

- Start Datafox Studio
- Open the Display Designer
- Create a new Display Design for either an EVO 7.0, EVO 5.0 or EVO 5.0 Pure.
- Switch from "Standard-Layout" to "Layout V2" on the Display Designer's main page
- Traverse to the tab "Layout V2"
- Press the button "New Design." The created design will be shown in the editor automatically.
- Use the Layout-V2 editor to perform the following actions:
 - 1) Assign a name to the design that will allow you to identify the layout's intent easily.
 - 2) Choose an appropriate grid, e.g. 12 rows and a single column.
 - 3) Select the topmost tile and choose "Text/Image" from the tile's context menu. Enter the instruction to the use using the "Customize Appearance" editor from the context menu.
 - 4) Multi-Select the following 10 rows and assign the type "List data tile" from the context menu.



- 5) Assign “Key -> ESC” to the bottom tile. The text may be set using “Customize Appearance” from the context menu. You may double click the cell to access the editor.
- 6) You may “Customize (the) Appearance” of the tiles at your preference.

Your first display design will look roughly as the following screenshot:

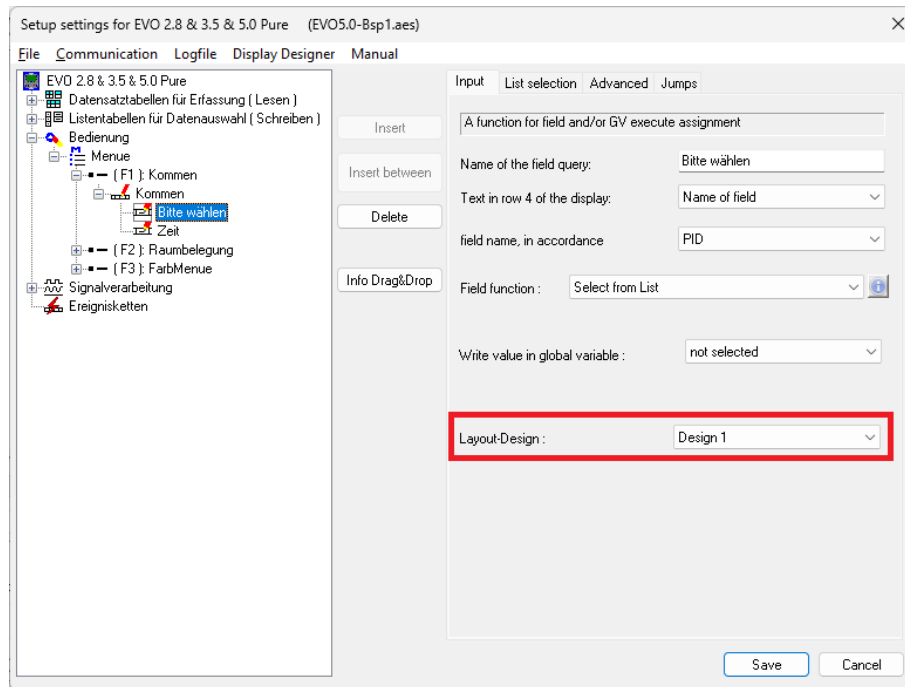


Above device output was created using the following list data:

; PID	Name
1000	Max Mustermann
1001	Eva Musterfrau
1002	Levi Mustersohn
1003	Lina Mustertochter
1004	Anton Mustersohn
1005	Emilia Mustertochter
1006	Emil Mustersohn
1007	Emma Mustertochter
1008	Theo Mustersohn

1009 Ella Mustertochter

To have the device use the display settings, you have to assign the layout to a field function. This setting may be done using the Datafox Studio's setup editor – if this setting is omitted or the device's firmware is too old, the device uses the standard layout.



Please upload the setup, list data and the display design to your EVO 7.0, EVO 5.0 or EVO 5.0 Pure to test the settings.

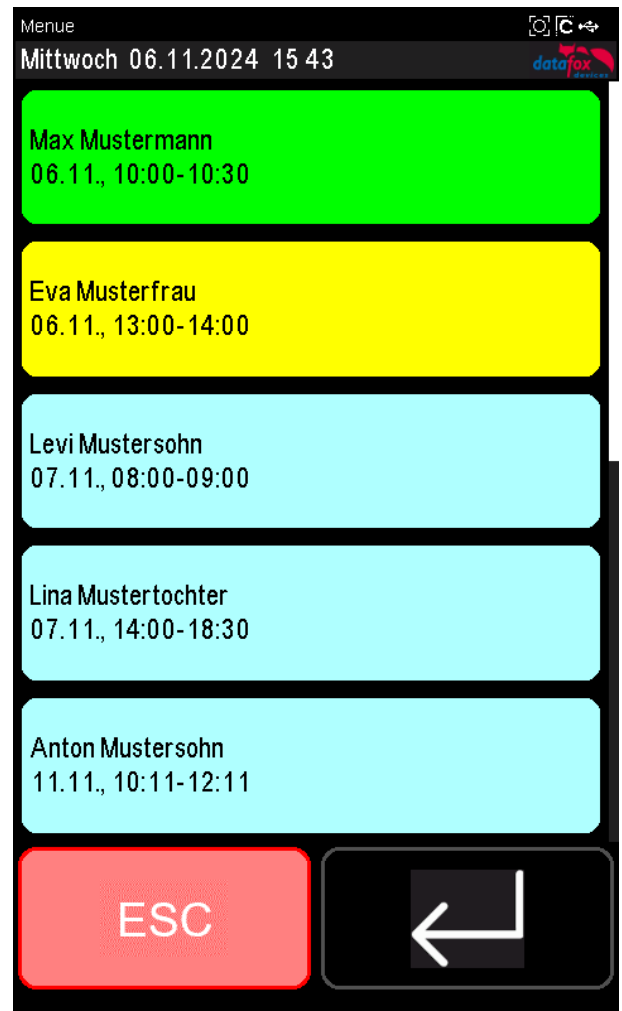
2.3.2. List data with multiple lines

Using tiles, you may show multiple lines of text within a single tile. Furthermore, you can specify the text alignment to be left-aligned, centred or right-aligned.

Multiple lines are achieved by using the line separator <LF> (ASCII 10).

In order to set the text alignment, use <TAB> (ASCII 8). A line may contain up to two tabulators – text in front of the first tab is shown left-aligned, text between the two tabs is centred, text after the second tab show right-aligned. If both or just one tab is omitted, the text is shown left-aligned or left-aligned and centred.

Datafox Studio from version 04.03.23.02 allows using the sequences “\n” and “\t” within list data, that are translated to <LF> or <TAB> during list data transfer. For direct data upload using the DFCom or HTTP it is required, that you incorporate the correct line separator and tab into the list data.

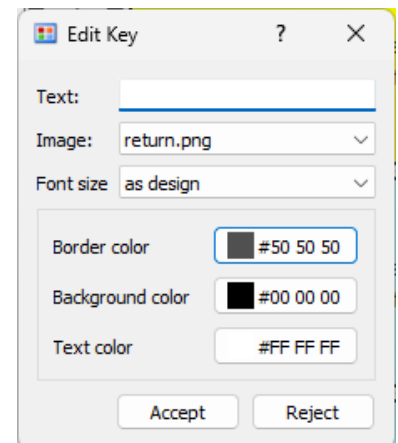


The corresponding device screenshot was done using the following list data:

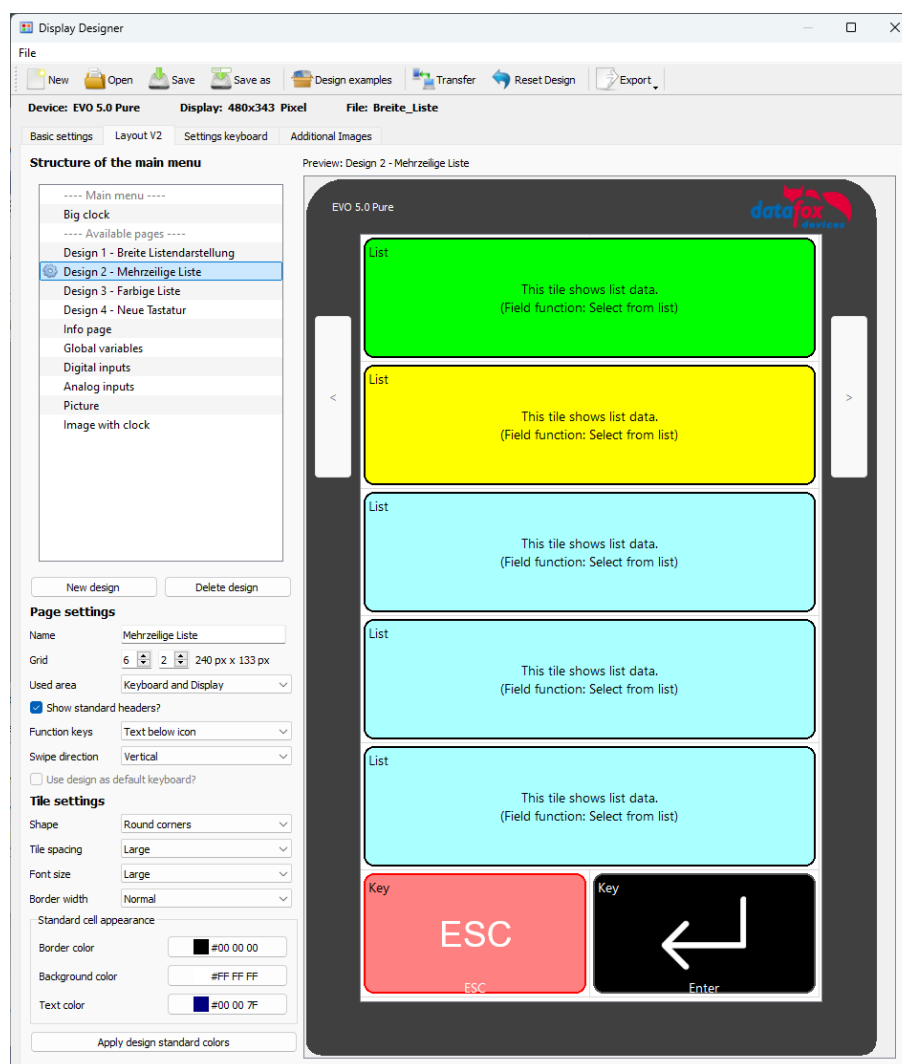
; ID	Belegung
1000	Max Mustermann\n06.11., 10:00-10:30
1001	Eva Musterfrau\n06.11., 13:00-14:00
1002	Levi Mustersohn\n07.11., 08:00-09:00
1003	Lina Mustertochter\n07.11., 14:00-18:30
1004	Anton Mustersohn\n11.11., 10:11-12:11
1005	Emilia Mustertochter
1006	Emil Mustersohn
1007	Emma Mustertochter
1008	Theo Mustersohn
1009	Ella Mustertochter

The display design is created from 6 rows and 2 columns.

- For each of the top five rows please select both tiles in the row and choose “Merge Tiles” from the context menu. Assign “list data tile” to the resulting merged tiles (either individually or by using multi-selection).
- The remaining two cells receive the functions “Key -> ESC” resp. “Key -> Enter”
- The enter key will additionally receive an icon. Please travers to the tab “Additional Images” first. At the bottom of the list click the button “Add Image.” This creates a new place within the list of images; assign the image for Enter here.
- As soon as the image has been added here, you may use the Layout V2 editors “Customize Appearance” to pick the image from the “Images” drop down list.



The preview of the display design after completing above steps will look as follows:



2.3.3. Colour-coded list data

Colours may be used to help the user to get quicker orientation. The following device screenshot shows reasons for clocking using colours to aid the user.

The layout consists out of 8 rows and 4 columns, where tiles have been merged.

The top 8 tiles are modelled to contain list data, the lower section contains ESC, Enter and keys for navigating within the list data.

The list assigned uses the optional “Colors” column that allows assigning individual colour settings to each row of list data.

The colours are specified from the outside inwards: Border, Background, text colour. Each colour values consists out of the hexadecimal representation of an RGB colour (8 bit per channel, see section 2.2.1)

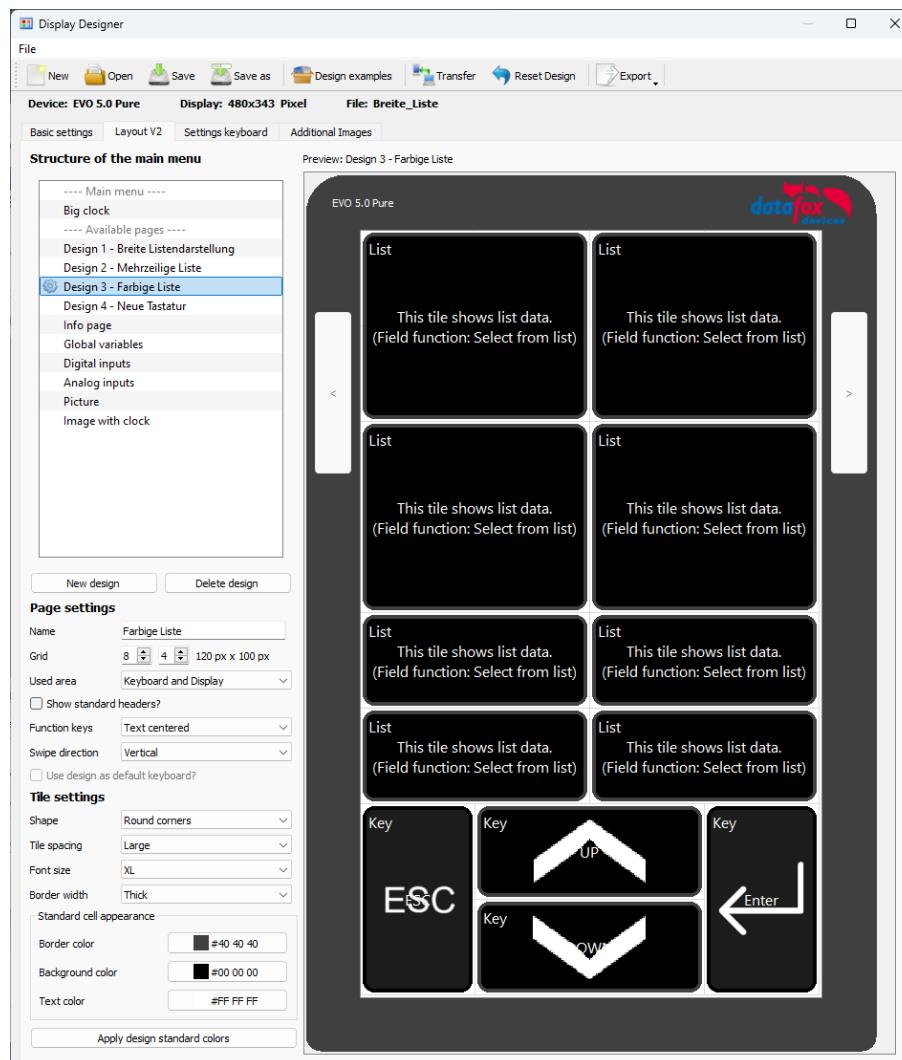


The screenshot shown uses the following list data.

; PID	Name	Colors
1	\tMITTAGS\n\tPAUSE	#0000ff #0000ff #ffffff
2	\tKURZ\n\tPAUSE	#0000ff #404040 #ffffff
3	\tDIENST\n\tGANG	#800080 #404040 #ffffff
4	\tDIENST\n\tREISE	#800080 #800080 #ffffff
5	\tKRANK	#ff0080 #404040 #ffc0c0
6	\tMONTAGE	#00c000 #404040 #c0ffc0
7	\tFORT\n\tBILDUNG	#c06000 #404040 #ffd0c0
8	\tBERUFS\n\tSCHULE	#c0c000 #404040 #ffffc0

- Using the function to merge tiles, please create the base layout shown below and set the top 8 tiles to be “list data tiles”.
- For this design is it not required to assign a colour scheme to the cells – cells without content will be displayed using standard colours of the dark design, cells displaying list data will receive their colour settings from the list data.
- Assign functions ESC, UP, DOWN and ENTER to the tiles in the bottom two rows. Images assigned to these cells will need to be added at the section “Additional images” first, after that they may be assign using the “Customize Appearance” editor.

The preview of your design will look like follows:



2.3.4. Individual keyboard section

Devices of type EVO 7.0, EVO 5.0 and EVO 5.0 Pure already offered a way to customized the touch keyboard section by showing a picture in the keyboard area. By means of Layout V2 you may create multiple touch keyboards, tailored to the needs of individual device functions.

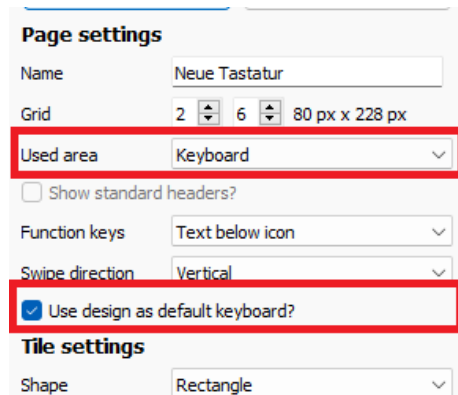
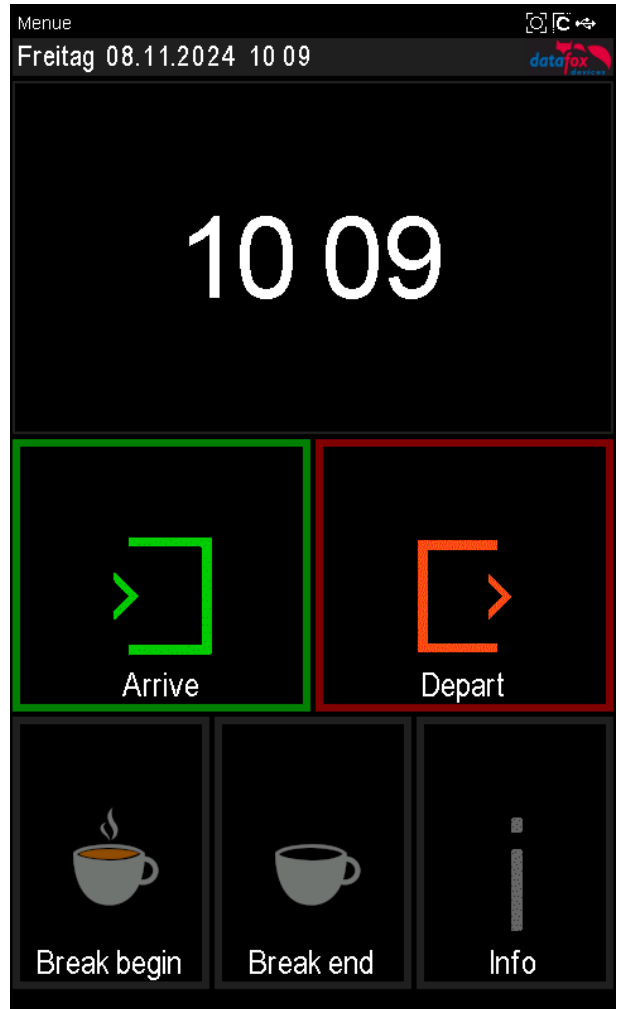
In addition to that you may exchange the “standard keyboard” by a Layout V2 keyboard. This new standard keyboard is used by the device’s main menu as well as in any place where no dedicated keyboard has been assigned to a field function.

The main menu of a device may be modelled as shown on the right-hand side.

The grid shown here contains 6 columns and 2 rows. Within the upper row, the two buttons are created from merging three tiles, the lower row merges two tiles into each button – this creates buttons of different sizes.

The images have to be added to the design as “additional images” and assigned to the corresponding buttons through the “Customize appearance” function.

In order to use the design as standard keyboard, it is necessary, that the design only uses the “Keyboard” area and is marked as “Use design as default keyboard”:



After uploading the display design to the device, the new standard keyboard will be shown.

Attention: Access to the system menu of devices having a touch keyboard is implemented by pressing Enter and ESC simultaneously. Should your design not contain these keys, access to the system menu is only possible by pressing the Logo for a prolonged time.

3. Unique device ids

			4.3/ 7.0	2.8/3.5	5.0	Uni- versal	Agera ZK	Inloc	Mobil Box	IO-Box	Oneloc	EVO- PC	
☒	☒	☒	☒	☒	☒	☒		☒	☒	☒	☒	☒	

The corresponding device or devices for which this section applies are labelled with ☒.

3.1. Device type id

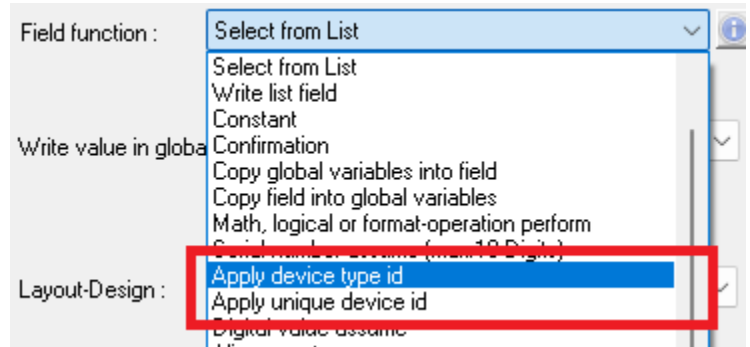
A new device type ID has been assigned to all Master IV devices. This makes it easier to distinguish devices and, together with the serial number, forms a unique device identifier. The former device id is still accessible.

3.2. New field functions

In order to use the new ID in the setup, two additional field functions are added which contain the new device type id

“Apply device type id” reports the new ID as a numerical value.

“Apply unique device type id” reports the id in conjunction with the serial number separated by a colon <device type id>:<serial number>.



This corresponds to the number printed on the type plate.

In addition, the identifier “%C3” can be used to display messages and execute script functions in order to use the device type id.



Please Note:

The new id is written to the device at the time of production. For devices that have already been delivered, the new device type id is derived from the device id.

3.3. http Extension

For http communication, the new unique id is part of the http header. The identifier “unique-device-id” is used to report the new identifier consisting of the device type ID and serial number.

Request-Header

accept	/*/*
accept-charset	ISO 8859-1
content-type	application/x-www-form-urlencoded
data-records-in-device	1
host	192.168.1.146:10110
unique-device-id	"87:48379"
user-agent	Datafox/04.03.23.01.rc-sven.2 36.48379

3.4. DFCom Extension

Two new commands are added for communication with the DFCom interface.

[DFCGetDeviceId\(\)](#) returns the device type id.

[DFCGetUniqueDeviceId\(\)](#) returns the device type id in conjunction with the serial number as seen in the “unique-device-serial” filed in the http.

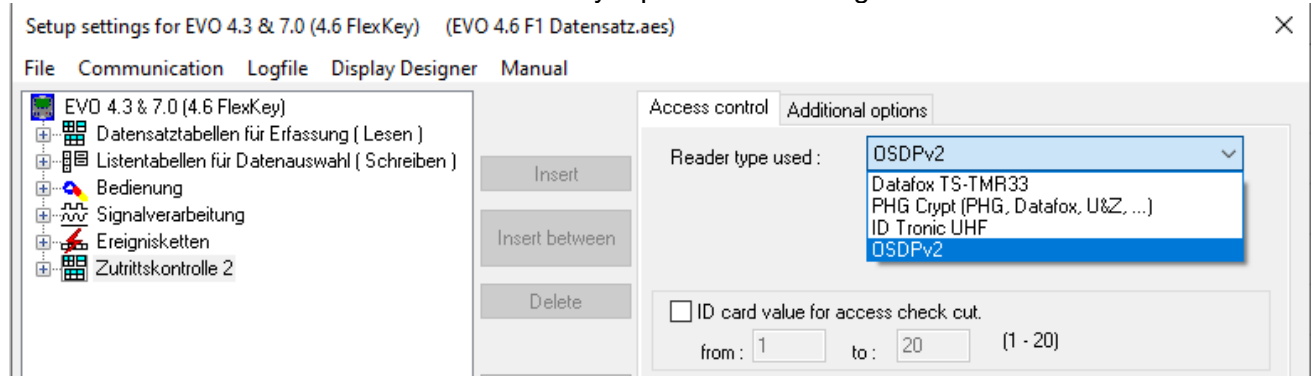
The exact description of the commands can be found in the DFCom documentation.

4. OSDP Protocol

This affects all Datafox Devices supporting access control.

4.1. OSDP Support

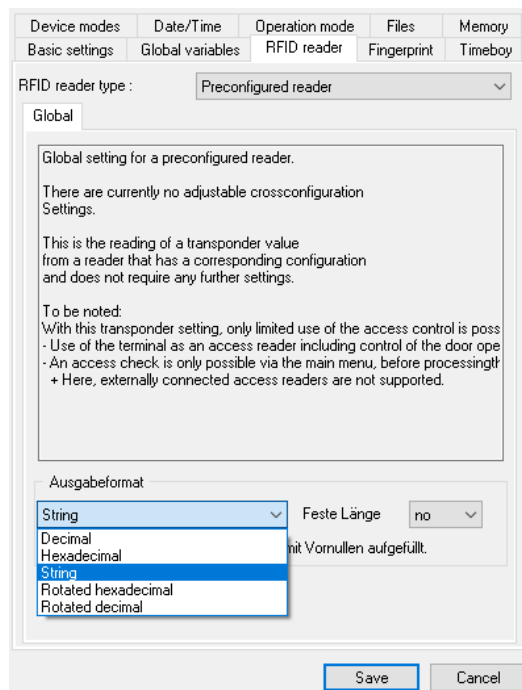
OSDP is now available as a protocol in access control. To activate OSDP, OSDPv2 must be selected in the Access Control menu in the setup. All connected buses are now operated with OSDP. The baud rate is set to 9600. It is not yet possible to change the baud rate.



Please note:

The extension for secure channels is currently not implemented and will be supported with a future firmware release.

4.2. Format read data



OSDP does not require the controller to configure the readers. Connected readers are pre-configured. Information on the data type or configuration cannot be read out by the controller.

Formatting of the read data can be adapted using the "Preconfigured reader" transponder procedure. The output format must be set accordingly for this.

If a different transponder method is selected, the data is reported as a HEX string without a fixed length.